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ABSTRACT

Rural Technical and Further Education (TAFE) students making the transition from rural and remote areas of Australia to urban university environments are likely to face educational challenges. Different understandings of literacy and numeracy held by the TAFE and tertiary sectors intensify these challenges. Case studies of four Western Australia TAFE courses (health science, tourism, children's services, and information technology) explored how further study options at university campuses are facilitated by the literacy and numeracy strategies and practices in regional TAFE courses. Literacy and numeracy strategies used in TAFE courses included modeling vocabulary, assimilation, transformational shifts in language, definitional practices, professional context, use of register, interpersonal exchanges, lifelong learning, emphasizing importance to employers, utilizing student interests, using multimedia, and diagnostic analysis. Educational needs and priorities identified include being aware of the political, social, and cultural dimensions of literacy and numeracy practices; integrating practical and theoretical aspects of course content; developing competency in professional discourses; making transformational shifts between everyday and professional language; demonstrating a high level of reading, writing, aural and oral communication skills; demonstrating competency in mathematical skills; approaching literacy and numeracy as practices for self-directed and lifelong learning; and developing competency in multimedia technology. (TD)

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Literacy And Numeracy Needs And Priorities: A Case Study Of Regional Tafe Courses In Western Australia

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This paper reports research into the literacy and numeracy needs and priorities of regional Technical and Further Education (TAFE) students in Western Australia taking courses which have further study options at university level. Case studies were made of four regional TAFE courses. Profiles of these courses were constructed in order to distinguish their particular literacy and numeracy demands. Curricular and pedagogical strategies for meeting these demands were identified from lecturer and student perspectives and practices. A review of university policies on literacy and numeracy was undertaken to contextualise the case study findings. A list of needs and priorities of the students was then compiled from an analysis of the profiles, strategies and policy review. Elley (1992) notes that "traditionally urban students have had many educational advantages not enjoyed by their rural counterparts" (p. 63). Among those disadvantaged therefore are TAFE students living in rural and remote areas. It follows on that TAFE students making the transition from rural and remote areas of WA to urban university environments are also likely to face educational challenges. This project addressed these challenges, which were found to be intensified by different understandings of numeracy and literacy held within the TAFE and tertiary sectors. This project also addressed issues of how further study options at (what are generally urban) university campuses are facilitated by the literacy and numeracy strategies and practices in place in regional TAFE courses, how those strategies might be located within a tertiary literacy and numeracy policy context and what constitute the needs and priorities of regional TAFE students taking courses offering university study options. For both the TAFE and university sectors, the significance of the project is that it will inform the provision of literacy and numeracy policy and practice in university-option TAFE courses.

This paper reports outcomes of research into the literacy and numeracy needs and priorities of Western Australian regional TAFE (Technical and Further Education) students taking courses which have further study options at university level[31]. The project involved case studies of four regional TAFE courses; profiles of these courses were constructed in order to distinguish their particular literacy and numeracy demands. The paper describes the curricular and pedagogical strategies for meeting these demands that were identified from lecturer and student perspectives and practices. It also outlines the student needs and priorities that were compiled from an analysis of the profiles and strategies.

Elley (1992) notes that "traditionally urban students have had many educational advantages not enjoyed by their rural counterparts" (p. 63). Among those disadvantaged therefore are TAFE students living in rural and remote areas. It follows on that TAFE students making the transition from rural and remote areas to urban university environments are also likely to face educational challenges.

The project reported here addressed these educational challenges, specifically the numeracy and literacy needs and priorities of regional TAFE students. These challenges may be intensified by different understandings of numeracy and literacy held within the TAFE and tertiary sectors. In the TAFE sector, approaches to literacy and numeracy generally are informed by curricular and pedagogical developments in adult education, such as in workplace programs, including vocational training and labour market programs, rather than developments in tertiary education. For example, workplace literacy programs typically treat literacy and numeracy as integrated through a recognition of the demands of specific employment and professional contextual situations.

In the university context, discourses about literacy generally evince the understanding that literacy is discipline-specific, comprising generic skills for coping with the language, literacy and communication demands within and beyond a course of study. These skills may involve, for example, the use of mathematical ideas and techniques, thus situating numeracy within the repertoire of 'academic literacies'; that is, within the literacies relevant to university study.

The project therefore sought to address, in a variety of ways, issues of how further study options at (what are generally urban) university campuses are facilitated by the literacy and numeracy strategies and practices in place in regional TAFE courses, and what constitute the needs and priorities of regional TAFE students taking courses offering university study options. For both the TAFE and university sectors, the significance of the project is that it

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will inform the provision of literacy and numeracy policy and practice in university-option TAFE courses.

The integrated approach to literacy and numeracy taken in this research is in line with those of the TAFE and university sectors, and conforms with the *Australian Language and Literacy Policy* (Dawkins, 1991) which offers the following definition:

> *Literacy is the ability to read and use information and to write appropriately in a range of contexts. It is used to develop knowledge and understanding, to achieve personal growth and to function effectively in our society. Literacy also includes the recognition of numbers and basic mathematical signs and symbols within texts. Literacy involves the integration of speaking, listening and critical thinking with reading and writing (Companion Volume: 8).*

Context

The context for the study was provided by four regional Western Australian TAFE courses with further study options which include university study: Associate Diploma of Health Science (Enrolled Nursing); Certificate III of Tourism; Diploma of Children's Services (0-5 Years); and Certificate III of Information technology. The target courses were chosen to represent a range of remote and rural courses and sites. Three of the courses exemplify those leading to tertiary programs in the social sciences and health science programs. The other is a commerce/technology oriented course, chosen to more clearly enable a numeracy focus.

Strategies

Literacy and numeracy strategies employed by the lecturers in the teaching of the target courses were identified from informal interviews with lecturers and students, student responses to questionnaires, and a review of curriculum documents, assessment tasks and student work samples.

Modelling Vocabulary

Lecturers shared the view that their teaching tasks involved helping students develop competency in the professional discourses pertaining to particular units being taught. Exemplifying this perception, the Health Science lecturer referred to "medical terminology" as a "new language" and as a "second language" for students.

One strategy typically used to facilitate this language acquisition was modelling. To continue with the example of the nursing lecturer, the effort was made to "use the language of a professional nurse". In the simplest illustration of this approach, in class instruction a mannequin on which students practiced was identified as "the patient".

Assimilation

A language familiarisation strategy observed with one class involved the lecturer breaking down or 'unpacking' professional phraseology. Introducing the concept of 'physical and motor competence in the one to three year old' the lecturer asked students to identify some of the milestones in the first year or so of an infant's life. When the students mentioned mastery of such skills as rolling over, sitting alone, crawling, pulling oneself up and so forth, then the lecturer repeatedly referenced these as 'motor skills'. In a short time, in discussion, students were using the term interchangeably with the skills identified. When the lecturer saw that the students were comfortable with the terminology then a more formal definition was given for the students to write down.

Transformational Shifts in Language

To develop competency in their professional discourses, two lecturers used the strategy of interchanging 'ordinary' and 'technical' phraseology. They also encouraged this practice with their students. For example:
Students might master the jargon but they have to show they understand it. I had one student. He was good at trotting out the textbook phrases. For example, in an essay he'd write up a procedure, say for bathing a patient, as 'give all nursing care required'. I'd say, what does it mean to look after the patient? You must itemize this 'nursing care', break it down. Explain what you must do when you wash the patient in the shower. How you position the soap!

Definitional Practices

Lecturers typically provided students with formal definitions of professional terms. For example, students working in the Information Technology course reported being given blackboard definitions of terms such as 'network', 'node' and 'interface card' to copy down. Often the definitions utilised more professional terminology thus 'embedding' the students more thoroughly in the discourse. For example, 'hardware' is defined as the Ethernet, modem, satellite dish and cable uplink. In the courses, a typical strategy for encouraging a commitment to memory involved the lecturer using a professional term and then asking students to orally provide its formal meaning. However, lecturers were flexible and utilised a variety of methods to encourage student acquisition of definitional meanings:
One student . . . he was falling behind. He tells me he has trouble remembering facts. I say, write on little cards things like "the body has 110 bones in it" and "there are 128 days in the life of a blood cell". Put the cards next to

the toilet roll in your toilet. Put them on your toilet wall, somewhere where you will see them every day. Then memorize them . . . he says it has helped him. His exams have improved.

Professional Context

In the TAFE courses examined, a strategy recurringly used for developing literacy and numeracy competency in the particular professional discourses involved utilising professional contexts. In the Information Technology course, for example, students developed tables and spreadsheets relating to employment by gender by using 'real' data from a 'real' employer organisation. In the Tourism course, students conducted a stocktake of a local business. Lecturers also tried to situate literacy and numeracy learning in professional venues. For example, students in the Health Science course were taught literacy and numeracy competencies in an annexe of a local hospital.

Students in the tourism course were asked to go out into the bush and act out being tour guides, which entailed practising a specialised vocabulary. Even when confined to the conventional classroom, lecturers sought to inscribe literacy and numeracy demands within a professional context. For example, the lecturer in the Children's Services course demonstrated to students how to wash small children's hands. As she did so, (in her own account of this procedure) she "talked the students through". Then, individually, the students had to 'talk through' and perform the procedure before the class. The lecturer emphasized that her whole approach to her job centred on "teaching the students how to teach".

Use of Register

The lecturer in the Children's Services course utilised a teaching/learning strategy for literacy and numeracy which involved accustomising students to choosing the appropriate register. In one of the student's words:
We are learning that you need to use positive language with children. For example, we have learnt that we have to avoid using 'don't' and 'no'. The theories are useful. We learn how to speak to people tactfully. Parents sometimes come up to you. They want advice, say, on what they should be feeding their child at 8 months if it was born premature and we have been learning how to choose our words so that we don't make parents feel inadequate.

Interpersonal Exchanges

This strategy for learning literacy and numeracy competencies was utilised by all the lecturers. Whereas repertoires of interactional strategies varied, the lecturers all oriented interpersonal exchanges towards establishing and fostering friendly, mutually respectful trusting relationships. There was concurrence that having such relationships supported the teaching/learning of literacy and numeracy. Students universally made the same observation. There were recurring endorsements of a relationship with the lecturer that was "one on one"and "personal". There were also recurring claims that learning had taken place because of the learning environment the lecturers had established. Lecturers were spoken of as "friends" and as "helpers". Without any prompting or questions structured to elicit such answers, students at each campus chorused their approval of their lecturers' approach to classroom interactions. One lecturer commented:

I think teaching and learning require trust and cooperation. I think you have to let students know that they do matter to you. I try to portray us, the teaching staff, as caring people. At Orientation, I tell the students we are caring. I tell them that we will be concerned about them, will be there to help them. I say, come and talk to us if you have problems. I talk about the importance of trust.

One of the ways in which lecturers achieved interpersonal relationships with their students that were conducive to learning (literacy and numeracy skills) was (in one student's words) "by being available and not just at some set time". Students typically appreciated this approach and saw the lecturer's concern for them as instrumental to their learning achievements.

At one regional campus, students reported that they expected to lose their lecturer for the next year (due to a shift in the mode of teaching) and had initially been very concerned at her departure, but now were not quite so worried because she had advised them that "if we need any help she is only up the hill and over the back fence".

Life-long Learning

Lecturers in the Associate Diploma of Health Science and Children's Services courses both sought to ensure the ongoing development of literacy and numeracy skills by encouraging students to the view that (in the words of one lecturer) "learning never stops" and (in the words of the other) "learning is for life":
This is the philosophy I try to instil, that learning is a life-long process. I say, while you are here and when you leave here and move on to university or into a career, keep learning, keep reading and researching. Don't think you've already learnt everything from the theory in this course. Don't go into cruise mode, just because you've graduated!

Emphasising Importance to Employers and in Employment

A strategy employed by all the lecturers was to emphasise the importance of literacy and numeracy skills to employers. For example:
They'll say what does it matter if I don't reference correctly, if I can't spell? I'm not going to be doing that. I'm going to be working! And I'll say, you know so and so in the grocery shop, do you think she doesn't need these skills? You may not care if you can't spell, but do you think employers won't care?

Utilising Student Interests

One of the students in the Children's Services course supplied this evidence of a teaching strategy for increasing literacy competency:
One of the things we did to help us with, I guess, literacy, was that we had to pick a subject that we wanted to learn about. I did sharks. We had to research it and write an essay about it. Then we had to present it orally. We were asked to use as many resources as we could to help the presentation. I had pictures and articles and a shark's jaw.

Use of Multimedia

When asked about reading materials for the Information Technology course both students present advised that their lecturer often converted data from one medium to another:
Here we get full access to the library. And when the lecturer gets material that he thinks might be helpful to us he puts it onto our computers, so we can access it when we need it.

Diagnostic Analysis

The Health Sciences lecturer described "catching problems early" as one of her more important contributions to helping students develop their literacy and numeracy skills. The lecturer in the Tourism course mentioned that she would like to initiate a strategy of pre-testing prospective students for deficiencies in mathematical competencies and that a current strategy she employed in respect to both literacy and numeracy was "teaching to problem areas". The Children's Services lecturer advised that one of her strategies was to send students with literacy and numeracy weaknesses to a bridging course. Lecturers also encourage students to try various problem-solving strategies. For example, an Information Technology student said:
If I'm having trouble with the maths, one of he things he (the lecturer) will say to me is that I should start with the answers and then do the workings out until I reach the same result

Needs and priorities

A major outcome of the research is the following summary list of needs and priorities of regional TAFE students taking courses with a view to tertiary study, presented below. These needs and priorities are drawn from reviews of the literacy and numeracy profiles of the target courses, and literacy and numeracy strategies employed in the courses.

Be aware of the political, social and cultural dimensions of literacy and numeracy practices.
- be aware of how the regional study community context shapes literacy and numeracy demands and practices
- recognise similarities and differences in the literacy and numeracy demands of rural and urban academic study
- recognise similarities and differences in the literacy and numeracy demands of various TAFE and university courses
- display literacy and numeracy competency in a range of academic contexts

Integrate practical and theoretical aspects of course content.

Develop competency in professional discourses.
- use of genre structures
- use of register

Make transformational shifts between 'everyday' and 'professional' language.
- use of vocabulary
- facility with 'technical' terminology

Use appropriate definitional practices.
- make appropriate meanings
- recognise conventional meanings

- Establish repertoires of interactional strategies.
- participate in group activities

Demonstrate a high level of reading, writing, aural and oral communication skills.
- display competency in procedural communications
- display competency in technical communications
- display competency in personal communications
- display competency in cooperative communications
- display competency in systems communications
- display competency in public communications

Demonstrate competency in mathematical skills.
- use mathematics in mathematical and non-mathematical situations
- effectively use mathematical representations, including graphs, tables and diagrams, in a range of contexts
- use mathematical language appropriately

Approach literacy and numeracy as practices for self-directed and lifelong learning.
- utilise literacy and numeracy skills for lifelong learning

- continually build on literacy and numeracy competencies

Develop competency in multimedia technology.

Have sufficient access to essential and supportive resource material and facilities, including library, internet, computers and practical placements.

Conclusion

Literacy and numeracy profiles of four Western Australian regional TAFE courses which have further study options at university level illustrated a complex set of demands within the texts and tasks encountered by the students. This paper has described strategies employed by the lecturers for meeting the literacy and numeracy demands of their courses. These strategies generally were found by lecturers and students to be successful in enhancing learning. The paper has also drawn on the course profiles to outline the literacy and numeracy needs and priorities of students in the target courses.

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